REMARKS

The Official Action mailed October 31, 2003, has been received and its contents carefully noted. Filed concurrently herewith is a *Request for Two Month Extension of Time*, which extends the shortened statutory period for response to December 3, 2003. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on January 24, 2002, and March 19, 2002.

Claims 1-36 are pending in the present application, of which claims 1-3, 23 and 28-30 are independent. The independent claims have been amended to better recite the features of the present invention, and claims 24-27 and 34-36 have been amended to correct minor matters of form. Favorable reconsideration is requested.

The Official Action maintains a rejection of claims 1-36 as obvious based on the combination of U.S. Patent Application Publication No. 2002/0098635 to Zhang et al. and U.S. Patent No. 5,966,596 to Ohtani et al. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present invention, as amended.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole

would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims, as amended. Independent claims 1, 23 and 28 have been amended to recite doping a semiconductor film comprising silicon with impurity ions through a chemical oxide film. Independent claims 2 and 29 have been amended to recite terminating dangling bonds on a surface of a semiconductor film comprising silicon with oxygen to prevent the semiconductor film from being etched by subsequent doping step. Independent claims 3 and 30 have been amended to recite terminating dangling bonds on a surface of a semiconductor film comprising silicon with an element to be bonded with bonding energy higher than that of Si-H bonds to prevent the semiconductor film from being etched by subsequent doping step. Zhang and Ohtani do not teach or suggest at least the above-referenced features of the present invention. Since Zhang and Ohtani do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained.

Furthermore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Zhang and Ohtani or to combine reference teachings to achieve the claimed invention. The Official Action asserts "that it would have been obvious to form the oxide film of Zhang et al. by the method of Ohtani et al. since it is a known alternative method of forming an oxide and as Ohtani et al. teaches this method improves the surface characteristics of the underlying film" (page 2, Advisory Action). The Applicant respectfully submits that Ohtani is not a known alternative method to Zhang, and even if Ohtani is a known alternative method of forming an oxide, that it would not have been obvious to use the Ohtani method of forming an oxide in lieu of the Zhang method of forming an oxide.

Ohtani appears to teach that improved surface characteristics due to the oxide indicates a condition that the amorphous silicon film does not repel water. More specifically, an extremely thin nickel film is formed in intimate contact with the surface of the amorphous silicon film by applying an aqueous solution of nickel acetate by spin coating (see column 2, lines 41-54 of Ohtani). In contrast, Zhang's oxide is formed as a protective film of a doping process (see page 8, [0118] of Zhang). The Official Action asserts that "the method of Othani et al. forms an oxide film and the method of Zhang et al. forms an oxide film and thus the effect is the same" (page 3, Advisory Action). The Applicant respectfully disagrees. Ohtani does not teach or suggest doping through an oxide as a protective film. Also, there is no common method of forming an oxide in Ohtani and Zhang. Even if Ohtani and Zhang both teach methods of forming an oxide, there is no indication in the prior art that it would have been obvious to use the Ohtani method of forming an oxide in lieu of the Zhang method of forming an oxide.

Therefore, the Applicant respectfully submits that Zhang's method is not an alternative to Ohtani's method because the purpose of and method of forming Zhang's oxide are different from that of Ohtani's oxide.

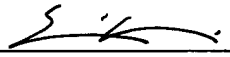
Further, the Applicant respectfully submits that Ohtani's oxide cannot be applied to Zhang's method in order to dope the semiconductor film with impurity ions through the chemical oxide film and in order to prevent the semiconductor film from being etched by a subsequent doping step, as recited in the amended independent claims.

Therefore, the Applicant respectfully submits that the Official Action has not provided a proper suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Zhang and Ohtani or to combine reference teachings to achieve the claimed invention.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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